REMARKS

Reconsideration and withdrawal of the rejections of the application are respectfully requested in view of the remarks and amendments herewith. The Examiner is thanked for indicating that claims 37-69 are allowed.

I. STATUS OF THE CLAIMS AND FORMAL MATTERS

Claims 37-74 are now pending. Claim 74 has been amended, without prejudice, without admission, without surrender of subject matter, and without any intention of creating any estoppel as to equivalents.

No new matter is added.

It is submitted that these claims are in full compliance with the requirements of 35 U.S.C. §112. The amendments to the claims and the remarks herein are not made for the purpose of patentability within the meaning of 35 U.S.C. §§ 101, 102, 103 or 112; but rather the amendments and remarks are made simply for clarification and to round out the scope of protection to which Applicants are entitled.

II. THE OBJECTIONS TO THE CLAIMS ARE OVERCOME

The Office Action objected to claim 74 due to a typographical error. Applicants respectfully submit that claim 74 is being amended herein to correct the recitation "adecreasing" to "a decreasing." Accordingly, the objection is now moot.

Reconsideration and withdrawal of the objection to the claims is respectfully requested.

III. THE ART REJECTIONS ARE OVERCOME

Claim 70 was rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Kim *et al.* (US 5,344,676). Claim 72 was rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Spiller (US 3,754,975). Claim 71 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Kim *et al.* (US 5,344,676). Claims 73 and 74 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Kim *et al.* (US 5,344,676) in view of Spiller (US 3,754,975). The rejections are respectfully traversed and will be addressed in turn.

It is respectfully submitted that a two-prong inquiry must be satisfied in order for a Section 102 rejection to stand. First, the prior art reference must contain **all** of the elements of the claimed invention. *See Lewmar Marine Inc. v. Barient Inc.,* 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987). Second, the prior art must contain an enabling disclosure. *See Chester v. Miller,* 15 U.S.P.Q.2d 1333, 1336 (Fed. Cir. 1990). A reference contains an enabling disclosure if a person of ordinary skill in the art could have combined the description of the invention in the prior art reference with his own knowledge of the art to have placed himself in possession of the invention. *See In re Donohue*, 226, U.S.P.Q. 619, 621 (Fed. Cir. 1985).

The Examiner is also respectfully reminded that for a Section 103 rejection to be proper, there must be some prior art teaching which would have provided the necessary incentive or motivation for modifying the reference teachings to arrive at the claimed invention. *In re Laskowski*, 12 U.S.P.Q. 2d 1397, 1399 (Fed. Cir. 1989); *In re Obukowitz*, 27 U.S.P.Q. 2d 1063 (BPAI 1993). Further, the Examiner is respectfully reminded that "obvious to try" is not the standard under 35 U.S.C. §103. *In re Fine,* 5 U.S.P.Q. 2d 1596, 1599 (Fed. Cir. 1988). And, as stated by the Court in *In re Fritch*, 23 U.S.P.Q. 2d 1780, 1783-1784 (Fed. Cir. 1992): "The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggests the desirability of the modification."

And, for the Section 103 rejection to be proper, **both the suggestion of the claimed invention and the expectation of success must be founded in the prior art, and not Applicants' disclosure**. *In re Dow*, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988). Furthermore, the Examiner is also respectfully reminded that MPEP 2143.01 mandates that for a Section 103 rejection, there must be some suggestion or motivation to modify reference teachings, and, that MPEP 2143.02 further mandates that for a section 103 rejection, there must be a reasonable expectation of success. In view of *KSR*, 82 U.S.P.Q.2d 1396, design incentives and common sense may be considered sufficient motivation to combine or alter a reference, however, an obviousness rejection must still provide sufficient detail to enable an Applicant to respond.

Applicants respectfully submit that the references relied on in the Office Action fails to provide any teaching or suggestion of the present invention.

Claim 70 claims a method of depositing a material in which *inter alia* the rate of feeding the material solution, the electric field strength and the temperature gradient are configured such

that the droplets one or both of decompose and react prior to reaching the substrate so as to form a powder.

There is no disclosure of such a method in Kim *et al.*

The Office Action states that Kim *et al.* teaches a method for applying nanodrops to a substrate to form a coating film or nanoparticles and that there "must inherently be a decrease in temperature as a function of distance from the heated substrate towards the outlet." Office Action at 3.

Applicants respectfully submit that in Kim *et al.* (see Figure 5 and column 4, lines 46 to 56), a method is disclosed for forming a powder. In this method, however, a spray of nanodrops is directed through a heated zone of uniform temperature as provided by a heater (42), and not a temperature gradient as required by the claimed invention.

There is absolutely no disclosure or suggestion in Kim *et al.* of the formation of a powder by directing a stream of droplets of a material solution through a temperature gradient.

The Office Action is alleging that Kim *et al.* relates to the formation of a powder in relation to the embodiments of Figures 1 to 4, and is specifically relying on the disclosure at column 3, line 23, which is understand to be the description of the formation of nanoparticles at column 2, line 23. This is not the case.

In the embodiments of Figures 1 to 4, Kim *et al.* relates only to the formation of thin films. This is clearly disclosed, for example, at column 3, lines 61 to 63 and column 4, lines 16 to 20. There is no teaching or suggestion whatsoever in relation to Figures 1 to 4 of the formation of powders.

This is further clearly evidenced by the fact that, in the embodiments of Figures 1 to 4, Kim *et al.* discloses the use of a patterned mask (30). It is respectfully submitted that the use of the patterned mask (30) would serve no purpose whatsoever in relation to the formation of powders, but only films, and the skilled artisan would not have contemplated otherwise.

The Office Action specifically refers to Kim *et al.* at column 2, line 23; however, this text relates only to the identification of the base compound. This passage provides no teaching or suggestion as to the use of the embodiments of Figures 1 to 4 in Kim *et al.* in the formation of powders. As described above, the embodiments of Figures 1 to 4 in Kim *et al.* are specifically adapted to provide only for the deposition of thin films.

Further, the Office Action alleges that the general description of Kim *et al.* as to the formation of nanoparticles has been overlooked, and that Applicants are arbitrarily relying on disclosures in the specification. This is not the case.

It is acknowledged that Kim *et al.* describes the formation of nanoparticles, but the disclosure of Kim *et al.*(see Figure 5 and column 4, lines 46 to 56) is to a spray of nanodrops directed through a heated zone of uniform temperature as provided by a heater (42), and not a temperature gradient as required by the claimed invention.

Kim *et al.*(see Abstract, lines 3 and 4, column 1, lines 10 to 13, column 1, lines 35 to 37, column 2, lines 22 and 23) clearly distinguishes nanoparticles, that is, solid particles with diameters of less than one micron, as formed in the embodiment of Figure 5, and uniform and patterned thin film deposits, as formed in the embodiments of Figures 1 to 4. Accordingly, descriptions in Kim *et al.* as to nanoparticles cannot be applied to the descriptions in Kim *et al.* as to patterned thin film deposits, and vice versa.

Accordingly, the invention as claimed in claim 70 is clearly novel over Kim *et al.* Applicants again respectfully submit that this distinction over Kim *et al.* was previously accepted by the USPTO in relation to the parent application, which granted as US Patent No. 6,331,330. Applicants specifically direct the Examiner's attention to claim 32 of US Patent No. 6,331,330. To refuse acceptance of the same distinction in the present application is inconsistent.

The Examiner is alleging that the subject-matter of claim 72 is anticipated by Spiller (US-3754975). This is not the case.

Claim 72 relates to a method of depositing a material in which *inter alia* a decreasing temperature gradient is provided from the surface of a substrate to an outlet.

Spiller makes no disclosure or suggestion of such a method. In Spiller, a non-metallic substrate (18, 18'), which is supported by a moving substrate support (13, 13'), is heated to an elevated temperature and coated with a metal salt, which decomposes to provide a metallic deposit [see, for example, column 3, lines 58 to 62].

Contrary to the Office Action's allegation, the fact that the substrates (18, 18') are heated to an elevated temperature does not result in a temperature gradient in the manner as required by the claimed invention.

In Spiller, as the substrates (18, 18') are moved, as embodied along a track (11), the substrates (18, 18') manifestly must be heated from the surrounding environment, and, in this

mode of heating, the environment must be hotter than the substrates (18, 18') in order to effect heat transfer from the environment to the substrates (18, 18').

The Office Action is continuing to allege that Spiller inherently provides a decreasing temperature gradient from the surface of the substrates (18, 18'), but this is absolutely not the case. Where the environment is hotter than the substrates (18, 18'), there manifestly cannot be a decreasing temperature gradient away from the surface of the substrates (18, 18') as required by the claimed invention.

The Office Action is alleging that it is a well-known scientific principle that heat rises from a heated object. This may be the case where the environment is cooler than the heated object, but where an object, here a substrate (18, 18'), is heated from the environment, there must essentially be a net heat flux from the environment to the substrate (18, 18'), requiring an increasing temperature gradient away from the surface of the substrate (18, 18'). This is a well-known scientific principle.

Accordingly, the invention as claimed in claim 72 is clearly novel over Spiller.

Turning now to the obviousness rejections, the Office Action is alleging that the subject-matter of claim 71 is obvious over Kim *et al*. Applicants respectfully disagree.

Claim 71 relates to a method of depositing a material in which *inter alia* an electric field is generated electrostatically to attract droplets towards a substrate and the electric field is maintained for at least part of the time during which the deposited material is cooled.

The Office Action has acknowledged that Kim *et al.* fails to disclose the maintenance of the electric field during cooling, but is continuing to allege that this is an obvious variation of the method of Kim *et al.,* in order to overcome problems associated with providing for continued attraction of the delivered nanodrops and maintaining the deposited material on the surface of the substrate. This is not the case.

It is respectfully submitted that the skilled person would have had no such understanding as alleged by the Office Action, and, while the skilled person may possibly have greater knowledge than the teaching of Kim *et al.,* the Office Action has failed to demonstrate that the proposed modification of Kim *et al.* was within the common general knowledge of the skilled person. It is respectfully submitted that the Office Action's allegation is, in fact, impermissibly motivated by a hindsight analysis of Kim *et al.*

Furthermore, Kim *et al.* simply does not allow for the modification as proposed by the Office Action, since, in Kim *et al.,* the high voltage (HV) which generates the electric field also actuates the spray unit (4) (see, for example, column 3, lines 26 to 32), and, by maintaining the high voltage during the cooling of the substrate, a spray would continue to be delivered, and yet the thermal environment would not be such as to achieve the required deposition. This fact appears to have been overlooked entirely by the Office Action.

Accordingly, the invention as claimed in claim 71 is clearly novel and non-obvious over Kim *et al.*

The Office Action also alleges that claims 73 and 74 are obvious over Kim *et al.* in view of Spiller *et al.* As described above, Spiller *et al.* does not teach or suggest a decreasing temperature gradient from the outlet to the substrate, and in fact actually describes the opposite. Consequently, Spiller *et al.* fails to remedy the deficiencies of Kim *et al.*, such that the combination of Kim *et al.* and Spiller *et al.* fails to render obvious claims 73 and 74.

For all of the above reasons, reconsideration and withdrawal of the rejections under 35 U.S.C. §§ 102 and 103 are respectfully requested.

REQUEST FOR INTERVIEW

If any issue remains as an impediment to allowance, prior to issuance of any paper other than a Notice of Allowance, an interview, is respectfully requested, with the Examiner his supervisor, especially as claims 37-69 are deemed allowable, and, the Examiner is respectfully requested to contact the undersigned to arrange a mutually convenient time and manner for such an interview.

CONCLUSION

In view of the remarks herein the application is in condition for allowance. Reconsideration and withdrawal of the rejections of the application, and prompt issuance of a notice of allowance is respectfully requested.

Respectfully submitted,
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